

MORPHOMETRIC ANALYSIS OF THE VAMSADHARA RIVER BASIN USING SPATIAL INFORMATION TECHNOLOGY

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ABSTRACT

Drainage characteristics playing a key role for watershed development and management plans for harnessing surface water and ground water resources. This study was undertaken to determine the drainage characteristics of Vamsadhara river basin (VRB). The study area with an areal extent of 10,601.5 km² is forms a part of Orissa and Andhra Pradesh states. Spatial Information Technology (SIT) i.e. Remote Sensing (RS) and Geographical Information System (GIS) has proved to be an efficient tool in delineation of drainage pattern. GIS and image processing techniques have been adopted for the identification of morphological features and analyzing their properties of the Vamsadhara river basin (VRB). The basin morphometric parameters such as linear and aerial aspects were determined and computed.

The significance of the morphometric characteristics in various sub-basins and for the whole basin, have been highlighted. It is 8th order drainage basin and drainage pattern mainly in subdendritic to dendritic type. The streams of lower order mostly dominate the basin. It is observed that the drainage density value is high which indicates the basin is less permeable subsoil with sparse vegetative cover. The circularity ratio value reveals that the basin is strongly elongated and less permeable homogenous geologic materials. This study would help the local people to utilize the resources for sustainable development of the basin area.

KEYWORDS: Vamsadhara River Basin, Morphometry, Water Resources Management, Spatial Information Technology